



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/728,235 | 12/03/2003 | Satoshi Okamura | 1232-5217 | 7517 |
| 27123 | 7590 | 12/11/2008 | | |
| MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101 | | | | |
| EXAMINER | | | | |
| PETERSON, CHRISTOPHER K | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 2622 | | | | |
| NOTIFICATION DATE | | DELIVERY MODE | | |
| 12/11/2008 | | ELECTRONIC | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOPatentCommunications@Morganfinnegan.com

Shopkins@Morganfinnegan.com

jmedina@Morganfinnegan.com

Office Action Summary

Application No.

10/728,235

Applicant(s)

OKAMURA, SATOSHI

Examiner

CHRISTOPHER K. PETERSON

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The Amendment After Non-Final Rejection filed on 8/29/2008 has been received and made of record. Claims 1 - 12 are pending in this application.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 11/19/2008 was filed after the mailing date of the amendment on 8/29/2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Arguments

3. Applicant's arguments with respect to claims 1 - 12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2, 7 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daikichi (Japanese Patent Pub. # 05-167915) in view of Chiba (Japanese Patent Application Laid Open # 2001-298661).

As to claim 1, Daikichi (Drawing 1) discloses an image sensing apparatus comprising:

- an image sensing element (CCD 2) that outputs a charge signal in accordance with a light amount of an object image formed on a light-receiving surface (Para 8);
- a light-shielding unit (iris 1) that shields said image sensing element from incident light (Para 8);
- a plurality of compensation units (adjustable gain circuit 3, CCD drive circuit 10, and diaphragm drive circuit 11) (Para 8).
- a setting unit (out switch 14) for setting at least one of an image sensing mode and an image sensing condition (Para 9). Daikichi teaches the out switch (14) selects a priority setting like shutter speed (Para 10 line 4 and 5 on page 3 of the spec.).
- a compensation control unit (9) that controls a compensation amount for each compensation unit based on the loss calculated by said exposure amount loss calculation unit in accordance with the at least one of the image sensing mode and the image sensing condition that is set by said setting unit (Para 11 and 13). Daikichi teaches the system controller (9) controls the compensation units (3, 10, and 11) (Para 8). Daikichi teaches

a priority mode (shutter speed priority) and gives another example on how the system controller determines the proper compensation is required.

Daikichi teaches an exposure amount loss calculation unit (system controller 9) that calculates a loss in exposure amount for said image sensing element (2) caused by operation of said light-shielding unit (Para 11). Daikichi teaches if the shutter speed is set to 1/15 sec, but the shooting speed is set to 1/30 sec. The shutter speed is too quick and the image will be under exposed by about $\frac{1}{2}$. The system controller (9) changes the shutter speed to 1/30 from 1/15 and calculates the shutter velocity ratio $(1/15) / (1/30) = 2$. This multiplier is then used to obtain the proper exposure (Para 11).

Daikichi does not teach an exposure amount loss calculation unit that calculates a loss in exposure amount for said image sensing element caused by a delay in closing of said light-shielding unit. The Chiba reference teaches a processing apparatus, an image processing apparatus compensation method, and a recording medium, and in particular, to an image processing apparatus, an image processing apparatus compensation method, and a recording medium, with respect to a digital camera that comprises a mechanical shutter function, that is capable of compensating, with a high degree of precision, for a light quantity loss resulting from a closing operation of the mechanical shutter that comprises a fixed misalignment, irrespective of a shutter speed or an aperture stop value of an electronic shutter (Para 1). Chiba (Fig. 8) teaches an exposure amount loss calculation unit (camera microprocessor 12) that calculates a loss in exposure amount (light loss quantity XnE) for said image sensing element (CCD 3) caused by a delay in closing of said light-shielding unit (iris / mechanical shutter 2)

(Para 50). Chiba teaches the camera microprocessor (12) receives an input of an imaging instruction signal from a control circuit (not shown), and generates a mechanical shutter operation timing information, an electronic shutter control signal, an aperture stop control signal, and a gain control value, in accordance with the aperture stop value, the shutter speed, and the compensation value of the shutter timing, which is computed by the AE mechanism and recorded upon the memory 21. Thus, the camera microprocessor 12 outputs the mechanical shutter operation timing information to a mechanical shutter operation instruction pulse generation circuit 23 of the signal processing circuit 13, outputs the electronic shutter control signal to a timing generator 14, outputs the aperture stop control signal to a driver 15, and outputs the gain control value to the analog/digital (A/D) conversion and auto gain control (AGC) circuit 11 (Para 31). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided exposure amount loss calculation unit as taught by Chiba to the exposure control system of Daikichi, because a digital camera that comprises a mechanical shutter function, that is capable of compensating, with a high degree of precision, for a light quantity loss resulting from a closing operation of the mechanical shutter that comprises a fixed misalignment, irrespective of a shutter speed or an aperture stop value of an electronic shutter (Para 1).

As to claim 9, this claim differs from claim 1 only in that claim 1 is an apparatus claim whereas claim 9 is a method. Thus method claim 9 is analyzed as previously discussed with respect to claim 1 above.

As to claim 10, this claim differs from claim 9 only in that the limitation "priority order" is additionally recited. Daikichi teaches a priority order to each of the plurality of compensation units (3, 10, and 11) in accordance with at least one of the image sensing mode and the image sensing condition that is set by the setting unit (14), and the compensation amount for each compensation unit (9) is controlled in accordance with the priority order (Para 13).

As to claim 2, Daikichi teaches the apparatus according to claim 1, wherein said plurality of compensation units (3, 10, and 11) include at least an image sensing element control unit (9) that controls a charge accumulation time (10) in said image sensing element (2) and a gain control unit (5) that controls a gain of the charge signal (Para 8).

As to claim 7, Daikichi teaches the apparatus according to claim 1, wherein said light-shielding unit (1) shields light at least for a period during which said image sensing element (3) outputs the charge signal (Para 8). The iris is a mechanical shutter, which would close completely to read out the image-sensing element.

As to claim 8, Daikichi teaches the apparatus according to claim 1, wherein said compensation control unit (9) gives a priority order to each of said plurality of compensation units (3, 10, and 11) in accordance with the at least one of the image sensing mode and the image sensing condition that is set by said setting unit (14), and controls the compensation amount for each compensation unit in accordance with the priority order (Para 11).

As to claims 11 and 12, Daikichi teaches a system control circuit (micro-computer 9). A computer readable medium, readable by an information processing apparatus, storing a program including program codes capable of realizing the control method according to claim 9, the program being executable by the information processing apparatus is inherent to a micro-computer (Para 8). Daikichi teaches a table of the program diagram is stored in ROM which is built-in the system controller (9) (Para 10).

1. Claims 1 - 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent # 5,831,676) in view of Chiba (Japanese Patent Application Laid Open # 2001-298661).

As to claim 1, Takahashi (Fig. 3) discloses an image sensing apparatus comprising:

- an image sensing element (CCD 3) that outputs a charge signal in accordance with a light amount of an object image formed on a light-receiving surface (Col. 4, lines 34 - 54);
- a light-shielding unit (iris 2) that shields said image sensing element from incident light (Col. 4, lines 34 - 54);
- a plurality of compensation units (AGC 5, CCD driving circuit 12, and iris driving circuit 14) (Col. 4, line 55 - Col. 5, line 16).
- a setting unit (key operation 20) for setting at least one of an image sensing mode and an image sensing condition (Col. 5, lines 46 - 55); and

Takahashi does not teach an exposure amount loss calculation unit that calculates a loss in exposure amount for said image sensing element caused by a delay in closing of said light-shielding unit. The Chiba reference teaches a processing apparatus, an image processing apparatus compensation method, and a recording medium, and in particular, to an image processing apparatus, an image processing apparatus compensation method, and a recording medium, with respect to a digital camera that comprises a mechanical shutter function, that is capable of compensating, with a high degree of precision, for a light quantity loss resulting from a closing operation of the mechanical shutter that comprises a fixed misalignment, irrespective of a shutter speed or an aperture stop value of an electronic shutter (Para 1). Chiba (Fig. 8) teaches an exposure amount loss calculation unit (camera microprocessor 12) that calculates a loss in exposure amount (light loss quantity XnE) for said image sensing element (CCD 3) caused by a delay in closing of said light-shielding unit (iris / mechanical shutter 2) (Para 50). Chiba teaches the camera microprocessor (12) receives an input of an imaging instruction signal from a control circuit (not shown), and generates a mechanical shutter operation timing information, an electronic shutter control signal, an aperture stop control signal, and a gain control value, in accordance with the aperture stop value, the shutter speed, and the compensation value of the shutter timing, which is computed by the AE mechanism and recorded upon the memory 21. Thus, the camera microprocessor 12 outputs the mechanical shutter operation timing information to a mechanical shutter operation instruction pulse generation circuit 23 of the signal processing circuit 13, outputs the electronic shutter

control signal to a timing generator 14, outputs the aperture stop control signal to a driver 15, and outputs the gain control value to the analog/digital (A/D) conversion and auto gain control (AGC) circuit 11 (Para 31). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided exposure amount loss calculation unit as taught by Chiba to the exposure control system of Daikichi, because a digital camera that comprises a mechanical shutter function, that is capable of compensating, with a high degree of precision, for a light quantity loss resulting from a closing operation of the mechanical shutter that comprises a fixed misalignment, irrespective of a shutter speed or an aperture stop value of an electronic shutter (Para 1).

As to claim 2, Takahashi teaches the apparatus according to claim 1, wherein said plurality of compensation units (5, 12, and 14) include at least an image sensing element control unit (12) that controls a charge accumulation time in said image sensing element (3) and a gain control unit (5) that controls a gain of the charge signal (Col. 6, line 48 – Col. 7, line 35).

As to claim 3, Takahashi teaches the apparatus according to claim 2, wherein if the at least one of the image sensing mode and the image sensing condition that is set by said setting unit (20) is set to preferentially control the charge accumulation time, said compensation control unit (25) preferentially controls said gain control unit (Col. 10, lines 1 - 13).

As to claim 4, Takahashi teaches the apparatus according to claim 2, wherein if the at least one of the image sensing mode and the image sensing condition that is set

by said setting unit (128) is not set to preferentially control the charge accumulation time, said compensation control unit (25) preferentially controls said image sensing element control unit (Col. 9, lines 30 - 67).

As to claim 5, Takahashi teaches wherein if the image sensing condition set by said setting unit (20) is set to control the charge accumulation time (shutter speed) to become equal to or shorter than a predetermined time, said compensation control unit (25) preferentially controls said gain control unit (5) (Col. 10, lines 6 - 13 and Col. 22, lines 4 - 39).

As to claim 6, Takahashi teaches wherein if the image sensing condition (Para 0069) set by said setting unit (20) is set to control the charge accumulation time (shutter speed) to become longer than a predetermined time, said compensation control unit (25) preferentially controls said image sensing element control unit (12) (Col. 10, lines 6 - 13).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER K. PETERSON whose telephone number is (571)270-1704. The examiner can normally be reached on Monday - Friday 6:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Sinh can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. K. P./
Examiner, Art Unit 2622
4 Dec 2008

/Sinh N Tran/
Supervisory Patent Examiner, Art Unit 2622